



**University of
Zurich**^{UZH}

**Zurich Open Repository and
Archive**

University of Zurich
University Library
Strickhofstrasse 39
CH-8057 Zurich
www.zora.uzh.ch

Year: 2010

The adoption of approach versus avoidance goals: The role of goal-relevant resources

Schnelle, J ; Brandstätter, Veronika ; Knöpfel, A

Abstract: The present research investigated whether the adoption of approach versus avoidance goals is affected by goal-relevant resources. When individuals have few goal-relevant resources, they should prefer avoidance goals, whereas when individuals have many goal-relevant resources, they should adopt approach goals. The individual's outcome expectancy is assumed to mediate this relationship. This hypothesis is supported by the findings of four multi-method studies with student samples. A crosssectional field study showed a positive relationship between the extent of goal-relevant resources and approach goal adoption. In a longitudinal field study, a high number of resources predicted the increase in personal approach goal adoption over a period of 4 months, controlling for neuroticism. Two experiments showed that the manipulation of resources affected approach versus avoidance task goal adoption, with outcome expectancy mediating the relationship. These findings complement existing findings on dispositional determinants of approach versus avoidance goal adoption.

DOI: <https://doi.org/10.1007/s11031-010-9173-x>

Posted at the Zurich Open Repository and Archive, University of Zurich

ZORA URL: <https://doi.org/10.5167/uzh-40148>

Journal Article

Published Version

Originally published at:

Schnelle, J; Brandstätter, Veronika; Knöpfel, A (2010). The adoption of approach versus avoidance goals: The role of goal-relevant resources. *Motivation and Emotion*, 34(3):215-229.

DOI: <https://doi.org/10.1007/s11031-010-9173-x>

The adoption of approach versus avoidance goals: The role of goal-relevant resources

Jessica Schnelle · Veronika Brandstätter ·
Annina Knöpfel

Published online: 12 August 2010
© Springer Science+Business Media, LLC 2010

Abstract The present research investigated whether the adoption of approach versus avoidance goals is affected by goal-relevant resources. When individuals have few goal-relevant resources, they should prefer avoidance goals, whereas when individuals have many goal-relevant resources, they should adopt approach goals. The individual's outcome expectancy is assumed to mediate this relationship. This hypothesis is supported by the findings of four multi-method studies with student samples. A cross-sectional field study showed a positive relationship between the extent of goal-relevant resources and approach goal adoption. In a longitudinal field study, a high number of resources predicted the increase in personal approach goal adoption over a period of 4 months, controlling for neuroticism. Two experiments showed that the manipulation of resources affected approach versus avoidance task goal adoption, with outcome expectancy mediating the relationship. These findings complement existing findings on dispositional determinants of approach versus avoidance goal adoption.

Keywords Motivation · Goals · Approach and avoidance goals · Goal-relevant resources

Introduction

Imagine a person who has no time constraints, is alert, feels energetic and is concentrated while working on her goals. When asked about her personal goals, she might focus on

positive outcomes and strive to 'successfully pass an important exam', for example. Try then to picture the same person in completely different circumstances. She is tired, feels drained and she cannot concentrate while working on her goals. In recent weeks, she has been constantly pushed for time. Again asking about her goals in that given situation, she might focus on potentially negative outcomes and strive to 'avoid failing an important exam'.

In the present work we focus on this very phenomenon that goal-relevant social and personal resources account for changes in the adoption of approach versus avoidance goals. As we will explain in the following section, we investigate resources as an important situational antecedent to the adoption of approach versus avoidance goals during the daily pursuit of personal goals. Individual outcome expectancy is addressed as a potential mechanism mediating between resources and approach versus avoidance goal selection (cf. Elliot and Church 1997). Since goal-relevant resources are viewed as a dynamic antecedent, we will contribute to an explanation of the emergence of intra-individual changes in the adoption of approach versus avoidance goals (Fryer and Elliot 2007). This extends the theoretical analysis of approach versus avoidance goal adoption in an important way since stable personality dispositions have thus far been considered the main antecedent in the approach and avoidance goal literature (e.g., motive dispositions, implicit theories, Elliot and McGregor 2001; Gable 2006; Higgins and Spiegel 2004).

Approach versus avoidance goals adoption as a stable construct

The distinction between approach and avoidance motivation within the goal construct is central to our research.

J. Schnelle · V. Brandstätter (✉) · A. Knöpfel
Department of Psychology, University of Zurich,
Binzmühlestrasse 14/6, 8050 Zurich, Switzerland
e-mail: v.brandstaetter@psychologie.uzh.ch

A goal is a cognitive representation of a possible state or outcome that an individual seeks to attain and that serves a directional function by guiding individuals toward anticipated end-states (Austin and Vancouver 1996; Emmons 1986). According to the hedonic principle (Higgins 1997), all human beings are motivated to approach pleasure and avoid pain. Consequently, in approach motivation behaviour is instigated or directed by a positive/desirable event or possibility, whereas in avoidance motivation behaviour is guided by a negative/undesirable event or possibility (Elliot 1999, 2008; Higgins 1997). For instance, in the domain of academic life one may *try to pass* an exam or one may *try not to fail* an exam.

So far, most research has dealt with enduring temperaments or personal dispositions that predict the adoption of approach versus avoidance goals. Consequently, research focused on motives and basic needs as preceding conditions for approach versus avoidance goals (achievement motives; Elliot and McGregor 2001; social motives; Gable 2006; Higgins 1997; basic needs; Higgins and Spiegel 2004). For example, Elliot and Sheldon (1997) demonstrated that motive dispositions such as fear of failure prompt the adoption of achievement avoidance goals. Other research showed that people whose behavioural inhibition system (BIS) is chronically activated (Gray 1970) adopt more avoidance goals, whereas people with a chronically activated behavioural activation system (BAS) select more approach goals (Elliot and Thrash 2002; Emmons and McAdams 1991; Heimpel et al. 2006). Furthermore, personality traits such as neuroticism predicted the selection of avoidance goals (Elliot et al. 1997; Payne et al. 2007). In conclusion, the adoption of approach and avoidance goals is strongly influenced by stable personality dispositions and as a consequence has been conceptualised by many authors as a stable construct.

Goal-relevant resources as antecedents of approach and avoidance goal adoption

Despite the agreement that approach versus avoidance goals are anchored in stable dispositions, other studies suggest that the adoption of approach and avoidance goals may change temporarily within an individual (e.g., Fryer and Elliot 2007). These authors argue that since optimal self-regulation requires, among other things, monitoring goal pursuit, evaluating goal progress, and considering the need for goal revision (Shah et al. 2002; Wrosch et al. 2003), a goal shift from approach to avoidance goals (or vice versa) may serve as a self-regulatory strategy in that goal striving is aligned with changing external circumstances of goal pursuit (Senko and Harackiewicz 2005).

Hence changing situational characteristics must exist which predict the dynamic adoption of approach and avoidance goals. We suggest that certain goal-relevant resources qualify as such. Diener and Fujita define resources as “material, social, or personal characteristics that a person possesses that he or she can use to make progress toward her or his personal goals” (Diener and Fujita 1995, p. 926; see also Hobfoll 1989). They explicitly state a direct link between the availability of resources and success in goal striving as “resources help one fulfil one’s physical and psychological needs” (Diener and Fujita 1995, p. 926). We will focus on those social and personal resources that are unstable in character. The *social resources* we will analyse are the support given by significant others (e.g., close friends, relatives, and intimate partners). As Hobfoll (1989) puts it: “social support’s effect seems to hinge on its value in promoting or supporting a positive sense of self and a view that one can master or at least see through stressful circumstances. [...] social relations are seen as a resource to the extent that they provide or facilitate the preservation of valued resources” (p. 517). As the quality of social relationships is waxing and waning over time (e.g., Perlman and Duck 1987) they clearly represent a fluctuating type of resource. The *personal resources* which we will concentrate on refer to a fluctuating type of self-control relevant resources (e.g., energy, self-discipline, concentration). These resemble Muraven and Baumeister’s (2000; Muraven et al. 2006; Muraven et al. 2007) concept of self-control strength, which is regarded as a limited resource that gets depleted with use but recovers after a certain time. Besides these social and personal resources, we will regard the time at one’s disposal as a further changing resource.

At the heart of our line of argument is the proposition that the availability of resources is related to the adoption of approach versus avoidance goals. Our reasoning is based on work by Ebner et al. (2006) who conceptualise *goal orientation* as a dynamic construct that develops over an individual’s lifetime. Goal orientation is closely related to our conception of approach versus avoidance goals. Ebner et al. (2006) studied goal orientation from the perspective of lifespan psychology, and a central hypothesis is that dynamic antecedents such as “changes in developmental opportunities and constraints across adulthood are reflected in personal goal orientation” (Ebner et al. 2006, p. 665). In their work, goal orientation toward growth versus toward prevention of loss was tested as a function of changes in age-related factors, such as the expected resource demands for goal attainment (Ebner et al. 2006; Freund 2006; Heckhausen 1997). In an experimental setting, they found that older adults chose significantly more prevention of loss goals than younger adults when they prepared for working on different cognitive and motor tasks. Goal selection

differed between young and old adults as a function of expected resource demands of the respective tasks (e.g., physical strain).

That is, from the perspective of lifespan psychology, people need to adapt to and master changing development opportunities and constraints. One way of managing the balance of gains and losses is to select age-appropriate goals by shifting the orientation on one's goals from growth toward loss prevention (Baltes 1997; Ebner et al. 2006). Hence, a dynamic factor such as age-related physical resources is predictive for changes in approach and avoidance goal adoption. Ebner and her colleagues argued from the perspective of lifespan psychology and concentrated on global age-dependent resources such as physical functioning. Moreover, they asked their participants to choose goals in fictitious laboratory tasks. Based on their findings one might ask whether even young individuals striving for their real daily goals will orient their goals on the actual availability of goal-relevant resources. This seems an especially important issue as Ebner and colleagues in their study varied the resource demands of the fictitious tasks and did not assess the availability of resources to the individual for the task in question. It might well be that the adoption of growth versus maintenance/prevention of loss was not driven by the individuals' subjective resources for the specific experimental task, but by other factors, e.g. the expected fatigue after working on the experimental task. In order to prove the significance of goal-relevant resources for the adoption of approach versus avoidance goals, it is necessary to analyse the subjective availability of individuals' goal-relevant resources as a possible antecedent.

The present studies

Our studies investigate whether the availability of goal-relevant resources predicts the adoption of approach versus avoidance goals as well *during the daily pursuit of personal goals* as in the *pursuit of a specific task goal*. We hypothesise that people with many goal-relevant resources at their disposal will select more approach goals, whereas people with few resources will adopt more avoidance goals. Therefore, the postulated relationship of resources and goal orientation is transferred from a lifespan perspective into a narrower micro-perspective of daily goal pursuit.

Furthermore, we were interested in gaining insight into a potential mediating mechanism for the relationship between resource availability and approach versus avoidance goal adoption. More specifically, we conjectured that low resource availability would be associated with low task-specific outcome expectancy, which would then result

in a preference for avoidance goals. There are two theoretical links for our hypothesis. First, as stated by Diener and Fujita (1995) "resources ... aid one in achieving a sense of competence and mastery" (p. 926). Second, Elliot and Church (1997) established a relationship between competence expectancy and the selection of approach versus avoidance achievement goals. In a field study with students pursuing achievement goals, the authors showed that competence expectancy was positively associated with approach goal and negatively associated with avoidance goal commitment. Competence/mastery expectancies or self-efficacy beliefs, as Bandura (1977) has described them, are core constructs in motivational issues of goal setting and goal achievement (Feather 1982; Heckhausen 1977). Competence/mastery expectancy refers to an individual's belief with respect to his/her potential to realize desired actions. Generally speaking, people with high self-efficacy beliefs choose more ambitious goals and persist longer in the face of obstacles and setbacks (e.g., Bandura 1990). The availability of only few resources should reduce an individual's belief in being able to successfully reach an aspired goal. As a result, the potential failure might become salient, orienting the individual towards failure avoidance. Formulating an avoidance goal can be interpreted as a lowering of one's level of aspiration (cf., Carver and Scheier 1998; Elliot 2008).

Our empirical work consists of four studies using a multi-method approach. In Studies 1 and 2, participants report on personal goals and goal-relevant resources. Study 1 has a cross-sectional design, whereas Study 2 has a longitudinal design; in it we investigate whether goal-relevant resources predict changes of approach versus avoidance goal adoption over a period of 4 months. Since avoidance goals are associated with neuroticism (Elliot and Sheldon 1998; Elliot and Thrash 2002) which as a consequence could—as a stable disposition—operate as a confounding variable in the relationship between goal-relevant resources and approach versus avoidance goal adoption, Study 2 is controlled for neuroticism. Studies 3 and 4 are experimental studies in which the availability of goal-relevant resources is manipulated. Study 3 is designed as a scenario experiment, where participants imagine being a person with few or abundant resources, respectively. Study 4 tests the relationship between goal-relevant resources and approach versus avoidance goal adoption in an online experiment where participants work on cognitive tasks under low or high time constraints. Whereas in Studies 1–3, the focus lies on *personal* approach versus avoidance goals, Study 4 investigates *specific task goals*. Additionally, in Study 4 the individuals' outcome expectancy is assessed in order to investigate a possible mechanism mediating between resources and approach goal adoption. Since we were working with different samples of freshman

students, we chose goals from the domain of academic life in order to work with important personal goals in relation to their specific phase in life.

Study 1

The aim of Study 1 was to provide evidence for the assumed relationship between the availability of goal-relevant resources and approach versus avoidance goal adoption. We hypothesised that the more goal-relevant resources students perceive, the more approach goals they will choose.

Method

Participants and procedure

283 (228 female and 55 male) freshman-students of a first-semester psychology course participated in the web-based study.¹ The average age of participants was 23.47 years ($SD = 6.58$). All participants received an extra credit for their participation.

Measures

Resources. Participants indicated the level of their goal-relevant resources on a scale comprising ten different resources. The resources items was selected from a list “designed to capture diversity in the kinds of factors that can help a person to achieve his or her goals” in the academic life domain drawn up by Diener and Fujita (1995, p. 929). We chose those fluctuating social (e.g., support of family and close friends) and personal (e.g., self-discipline at work, concentration, energy, stress resistance) resources that were interpreted as being relevant to goal-striving in freshman students. Furthermore, assuming that the amount of available time is one of the most important resources for academic goal striving, we assessed participants’ estimation of the time at their disposal. For each resource, participants compared themselves with the average student on a scale from 1 (*much below average*) to 7 (*much above average*). For the ten-item scale, the reliability was Cronbach’s $\alpha = .73$.

Assessment of approach versus avoidance personal goals. To assess approach and avoidance goals, we generated a measure that comprised academic goals in approach and avoidance goal phrasing. These goals were obtained from a pool of over 400 goals named by students

in a pilot study, in which they were asked to indicate what they were trying to achieve during a semester-long period of time. We aggregated these goals by analysing the contents into 37 superordinate categories. The most frequently named categories were included in the final list of eleven academic goals. This list was presented to 58 freshman students who indicated how important those goals were in their present life situation (1 = *not at all*, 6 = *very important*). Each goal had a mean descriptiveness rating in the top third of the scale (greater than 5). Our intention was to present participants broad relevant goals, for each of which they would only have to indicate the actual motivational orientation with which they were striving for them.

We subsequently worded these goals using approach as well as avoidance phrasing, thus focussing on the valence without changing the content of the goal. The approach and avoidance phrasings were displayed randomly at the two ends of a continuum. This measure was presented as a dichotomous forced-choice scale, in which participants could omit those goals to which they did not feel committed at the moment. The advantage of a bipolar approach-avoidance goal measure is that there is no confounding between goal content and approach/avoidance orientation. For example, in the achievement goals questionnaire (e.g., Elliot and Sheldon 1997), a specific goal content is only presented either in an approach or an avoidance format, leaving open whether it is the specific goal content or approach/avoidance orientation what causes the effect. Despite this, there is a consensus that approach and avoidance constitute two independent functional systems (neurophysiological substrates; Berridge 2004; Gray 1990; affective dispositions; Larsen and Diener 1992; for an overview see, Gable et al. 2003; Gray 1990); on the level of concrete personal goals one is either eagerly approaching positive outcomes or avoiding negative outcomes (Lewin 1935).

For eleven academic goals, participants had to rate whether they were *at the moment* striving for these goals in the approach or avoidance goal phrasing. Every goal was announced with a title which displayed the goal content and, underneath the title, two different phrasings of the goal (e.g., To pass the exam—‘I want to pass the exam’ versus ‘I don’t want to fail the exam’; To get to know fellow students—‘I want to get to know new fellow students’ versus ‘I don’t want to miss out on getting to know new fellow students’; To be prepared for lectures—‘I want to be prepared for all the lectures’ versus ‘I don’t want to be unprepared for all the lectures’). Of the eleven academic goals presented, participants selected on average a total of 8.05 goals ($SD = 1.50$), where 5.85 ($SD = 1.73$) of them were phrased as approach goals and 2.20 ($SD = 1.31$) as avoidance goals. We calculated an index of the proportion

¹ We worked with the freeware php surveyor (<http://psychmservers.unizh.ch/phpsurveyor/admin>, Retrieved February 27, 2008).

of approach goals,² relating the number of approach goals chosen to the total number of goals selected by the individual. Given that approach and avoidance were coded dichotomously for each goal, the index can be interpreted twofold. A high index represents a high proportion of selected approach goals and a small proportion of chosen avoidance goals.

Results

The mean level of goal-relevant resources was $M = 4.18$ ($SD = .55$), with an observed range between 2.30 and 6.00. The observed range for academic approach goals was between 0 and 1, with a mean index of .72 ($SD = .16$). This means 72% of the academic goals chosen by the participants were phrased as approach goals. This proportion of approach goals is in line with other empirical work in young adults (Elliot et al. 1997). The analysis revealed that goal-relevant resources were positively associated with approach goals within academic life ($r = .35$, $p < .001$). No sex differences were found within this relationship. It is notable that resources were not associated with the total number of goals, therefore indicating that resources were only associated with the quality, i.e. approach versus avoidance goal orientation, but not with the quantity of goals.

Brief discussion

The results support our assumption that the number of goal-relevant resources plays an important role in everyday adoption of personal approach goals in a student's life. That is, students who rated themselves as having many resources strived for more approach goals than students with few resources. Since we computed an index based on the proportion of approach goals as a ratio of the total number of selected goals, this effect cannot be ascribed to a goal effect per se, for example that those students who perceive more resources generally strive for more goals.

However, since we assessed goal-relevant resources and approach versus avoidance goals at the same time in this cross-sectional study, we cannot draw any conclusions about the direction of the relationship. Furthermore, the relationship found between goal-relevant resources and approach goal adoption could be spurious in that ratings of resources could simply reflect an expression of neuroticism.

² In order to minimise the complexity of approach versus avoidance goal indices, we will, in our further analyses, refer to the proportion of approach goals. Note that, due to the dichotomous assessment of approach versus avoidance goals, this index could also inversely be interpreted as proportion of avoidance goals.

Individuals high in neuroticism tend to adopt avoidance goals (Elliot et al. 1997). And as individuals high in neuroticism would presumably indicate having few resources, the reported findings would be attributable to stable personal characteristics such as neuroticism rather than dynamic, changing factors such as goal-relevant resources.

Study 2

In Study 2, we extended the findings of Study 1. We assessed resources and academic approach goal orientation in a longitudinal design covering three testing periods, which enabled us to predict the change of approach goals over the course of the semester. In addition, neuroticism was assessed in order to control for its influence on approach versus avoidance goal adoption.

Method

Participants and procedure

350 paper–pencil questionnaires were administered to freshman students in various lecture courses. Ninety-six students from different faculties at the University of Zurich and the Swiss Federal Institute of Technology participated in the first phase of the study (response rate = 27.4%). T2 und T3 were investigated using web-based questionnaires that were announced via email. A total of fifty-eight freshman students (42 women and 16 men) participated voluntarily over a period of 5 months. Participants who dropped out during the test period did not differ from those students who participated in the whole study with respect to goal-relevant resources, approach versus avoidance goal adoption, neuroticism and sex. The average age was 20.68 years ($SD = 2.54$).

Longitudinal design

Data were collected at three testing points covering 19 weeks of a 5-month winter semester. The first (T1) took place during the 6th week of the semester (in December). Subsequent testing periods took place 4 weeks (T2 in January) and 16 weeks later (T3 in April). Resources and neuroticism were assessed at the first testing point, whereas academic approach goal orientation was assessed at each of the three testing points.

Measures

Resources. In order to assess resources that represent changeable rather than invariant resources, we excluded

those resources from our list which could be interpreted as stable resources, namely social skills and assertiveness. In addition, we merged the two forms of external support, family support and support from close friends, to one resource labelled social support. The resulting list comprised seven resource items (e.g., time, self-confidence, self-discipline at work, energy, social support, power of concentration) which were considered important to the persistence of goal pursuit in the academic life domain. As in Study 1, participants compared themselves with an average student and indicated the level of their resources from 1 (*much below average*) to 7 (*much above average*). The reliability of the resource scale was $\alpha = .46$.³

Approach versus avoidance personal goals. For the academic approach versus avoidance goals, we used the same dichotomous forced-choice measure and the same instructions as in Study 1. The greater part of the goal content presented in Study 2 was taken from Study 1, whereby some small changes were made since we were interviewing a student sample with different structural conditions in their studies (e.g., to find one's bearings at the university—'I want to be well-versed with the life at the University of Zurich or the Swiss Federal Institute of Technology' versus 'I don't want to be confused with the life at the University of Zurich or the Swiss Federal Institute of Technology'). As in Study 1, participants could omit those goals to which they were not currently committed.

Neuroticism. Neuroticism was assessed using the 16 PA (16 Personality Adjectives; H. Brandstätter 1988), a German scale consisting of 32 paired adjective descriptive of an individual's personality. These adjective pairs represent the 16 primary personality factors put forward by Cattell (1957; Cattell et al. 1993). For each adjective pair (e.g., 'careless—conscientious', 'sensitive—thick-skinned'), participants have to indicate on a continuum from 1 to 9, with one adjective on one end and the other adjective on the other end, which of these adjectives describes them best. Neuroticism, as one of Cattell's five secondary personality factors, is reliably estimated by a regression analytic procedure taking into account an individual's self-description on the 32 items of the 16 PA

scale (for neuroticism $\alpha = .82$; for methodological details, see H. Brandstätter and Königstein 2001).

Results

Descriptive statistics

The means, standard deviations and zero-order correlations of goal-relevant resources, neuroticism and approach goal orientation are reported in Table 1.

Resources predicting changes in academic approach goal orientation controlling for neuroticism

We ran several hierarchical regression analyses controlling for neuroticism in order to rule out that the relationship between resources and approach goal orientation is based on the confounding stable personality disposition of neuroticism. More specifically, to capture a longer time period than in Study 1, we analyzed whether the level of resources at T1 predicted the criteria variable approach goal orientation at T2 and T3, after controlling for neuroticism and the autoregressive influences of approach goal orientation at T1. Due to the fact that our hypothesis was directional, we will report the level of significance α for one-tailed testing.

As shown in Table 2, even after controlling for neuroticism and approach goal orientation at T1, goal-relevant resources at T1 positively predicted approach goal orientation at T2 ($\beta = .24$, $p < .05$) and at T3 ($\beta = .16$, $p < .10$). In both regression analyses, resources accounted for additional variance in the increase of approach goal orientation at T2 ($\Delta R^2 = .04$) and at T3 ($\Delta R^2 = .03$). Thus, the more students perceived themselves as having abundant resources at the beginning of the semester, the more they adopted approach goals or the less they adopt avoidance goals 4 and 16 weeks later.

Table 1 Descriptive statistics and intercorrelations of all variables (Study 2)

	<i>M</i>	<i>SD</i>	1	2	3	4
1. T1 resources	4.28	.67	—			
2. T1 neuroticism	6.06	2.52	-.48**	—		
3. T1 approach goal orientation	.68	.16	.38**	-.32*	—	
4. T2 approach goal orientation	.74	.17	.44**	-.30*	.63**	—
5. T3 approach goal orientation	.76	.18	.39**	-.32*	.59**	.66**

* $p < .05$, ** $p < .01$

N = 57, T1 = time 1; T2 = time 2; T3 = time 3

³ Unexpectedly the internal consistency of the resource scale was much lower than in Study 1. One might presume that this is due to the different samples of the studies. Whereas only freshman-students from the first-semester course in psychology participated in Study 1, with very similar conditions in their academic life, Study 2 worked with a much more heterogeneous sample of students from different universities and faculties in which the environmental conditions differ strongly from each other. This heterogeneity of the sample and external conditions could be reflected in a lower reliability of the scale.

Table 2 Hierarchical regression of approach goals on resources (Study 2)

Step	Variable entered	ΔR^2	F for increment	B	SE B	β
DV: T2 approach goals						
1	T1 neuroticism	.09	5.17*	-.00	.01	-.02
2	T1 approach goal orientation	.31	26.81***	.55	.12	.53***
3	T1 resources	.04	3.60*	.06	.03	.24*
DV: T3 approach goals						
1	T1 neuroticism	.10	6.11**	-.01	.01	-.08
2	T1 approach goal orientation	.25	21.23***	.54	.13	.49***
3	T1 resources	.03	1.57 [†]	.04	.04	.16 [†]

N = 58, [†] < .10, * $p < .05$, ** $p < .01$, *** $p < .001$

Brief discussion

We were able to replicate and extend the findings of Study 1 that participants who perceived themselves as having a plenty of goal-relevant resources subsequently selected more approach goals (or less avoidance goals) than participants with few resources. Since we assessed resources and approach goal orientation in a longitudinal design, we have an indication of a causal tendency for resources at the beginning of the semester to predict an increase in approach goal orientation 4 and 16 weeks later. By controlling for neuroticism, we can exclude the alternative explanation that the relationship between resources and approach goal orientation might be spurious and due to a confounding stable disposition, such as neuroticism. All in all, our findings support the notion that the extent of goal-relevant resources affects approach and avoidance goal selection several weeks later. As participants could omit those goals which were not important for them, an increase in our index of approach goal orientation could be attributable to either an increase in approach goals or a decrease in avoidance goals adoption. However, to test the causal relationship in a more stringent way, it is necessary to conduct experiments in which the availability of resources is manipulated systematically. Studies 3 and 4 pursue this line of reasoning.

Study 3

With Study 3 we wanted to test the hypothesis that participants who were assigned to an experimental group with many resources would consequently select more approach goals than participants assigned to a group with few resources. Participants read a scenario describing a fictitious student starting her studies in a new city, who either had many or few resources in this new life context. Participants were asked to adopt this person's perspective and to choose between approach or avoidance goals as if they themselves were the student.

Method

Participants and procedure

Students attending the same introductory course of Study 1 were invited to take part in this study 1 month after the completion of Study 1. One hundred and twenty students (98 women and 17 men, a further 5 participants did not indicate their sex) took part in this study for extra credit. The mean age was 23 years (SD = 6.90). Participants were randomly assigned to one experimental condition, with each group (many resources versus few resources) containing 60 participants.

The questionnaire for this experimental scenario-study was distributed at the end of the semester. Students were asked to work on it individually and to return the questionnaire 1 week later. They were told that they were participating in a study that was ostensibly designed to measure their ability of social perspective taking. Participants first received a short scenario text describing a student with either low or high resources. Then a selection of goals was announced, asking participants to choose those goals which they thought the student would strive for.

Materials

Experimental resources induction. In this induction we manipulated those resources which can be considered to change depending on situational characteristics, that is family support, time for learning projects, actual self-confidence, concentration, energy, and close friends were all reported as either temporarily existing or being absent resources of the female student. The scenario text for the induction of low resources was as follows, whereby the words in bold print are key clues:

"Sybille, aged 21, started her psychology studies at the University of Zurich 3 months ago. She is convinced of her own intentions concerning her studies. Unlike some of her colleagues she does **not receive**

financial support from her parents. Her parents hold the opinion that she **doesn't need to study** because she would also be able to run the family business without a degree. It took her **a long time** to find a place to live in a students' shared flat and she only gradually managed to settle in Zurich. She therefore **started** learning for the upcoming exams **a little late**. In addition, it seems to her that her part-time job **doesn't leave** her **enough time** to prepare well and thoroughly for the current lectures. At the moment, she **is unsure** how she will master her studies. Right now she **is unable to concentrate** on the course material. She is **tired** and **feels burnt out**. Her **ability to concentrate** is **worse** than before. She is often tempted to watch TV in order to relax and consequently **fails** to stick to her planned time schedules **to learn**. Sybille has **close friends** who encourage her every now and then. Unfortunately most of them live in a **different town**."

The participants were asked to read the text carefully and concentrate on the following questions: How does the person feel? What kind of thoughts are on her mind?

Approach versus avoidance goals. Participants then had to fill out the same measure of academic approach versus avoidance goals as in Study 2. The task for the participants was to select those goals which the fictitious student would adopt based on her current situation. As in the previous studies, we calculated the relative number of selected approach goals as a dependent variable. On average, participants selected a relative proportion of approach goals of .56 ($SD = .28$), ranging from 0 to 1.

Identification with the scenario. At the end of the goal questionnaire we assessed participants' identification with the scenario using the following two questions ('How similar is the described life situation of the student to your own life situation?' and 'How well can you imagine being in the situation described in the scenario yourself?') on a five-point scale (1 = *not at all*, 5 = *very similar* or *very well*). The two items correlated significantly $r = .35$, $p \leq .001$, indicating that the more the situation resembled the student's own situation, the better they could imagine being in the described situation.

Results

Preliminary analysis

The two groups (many resources versus few resources) were first compared regarding demographics and identification with the scenario. Several significant differences between the two groups were found. Participants in the few

resources group indicated that the situation was less similar to their own situation ($M = 1.53$, $SD = 1.21$) compared to participants in the many resources group ($M = 2.05$, $SD = .96$; $t(118) = 2.58$, $p \leq .01$). Also, students in the few resources group stated that they were less able to imagine the situation ($M = 2.77$, $SD = .79$) than participants in the many resources group ($M = 3.13$, $SD = .93$; $t(118) = 2.33$, $p \leq .05$). This means that the scenario with many resources resembled the students' own situation more and it was easier for them to imagine this scenario. Despite the fact that the scenario used a female protagonist, female participants ($M = 2.39$, $SD = .79$) did not identify more strongly with the scenario than male participants ($M = 2.13$, $SD = .91$, $t(118) = 1.26$, $p = .22$).

Testing differences in approach goal adoption between experimental groups

To test our hypotheses, we computed a unifactorial (scenario: many resources versus few resources) between-subjects ANCOVA for approach goal adoption, with an aggregated measure of the variables similarity and ease of imagination as a covariate. The analysis showed a significant effect of similarity and ease of imagination $F(1, 119) = 6.01$, $p \leq .05$, $\eta^2 = .05$. In addition, the analysis revealed an effect of the scenario on the number of selected approach goals, $F(1, 119) = 140.78$, $p < .001$, $\eta^2 = .54$. The group with few resources, where all goal-relevant resources were described as being low, selected fewer approach goals ($M = .35$, $SD = .16$) than the group with many resources ($M = .77$, $SD = .21$), where all goal-relevant resources were described as being high.

Discussion

As predicted, participants in the few resources group selected fewer approach goals than participants in the many resources group. We therefore assume that the number of resources has a direct causal influence on approach and avoidance goals adoption. The fact that participants in the high resources condition indicated their own situation to be more similar to the respective experimental scenario than participants in the low resources condition can be interpreted as an instance of illusionary optimism in the former (Taylor and Brown 1988). Taylor and Brown's (1988) model of mental health maintains that certain positive illusions are highly prevalent in normal thought. Taylor and Brown (1994) reviewed evidence "indicating that most people exhibit positive illusions in three important domains: (a) They view themselves in unrealistically positive terms; (b) they believe they have greater control

over environmental events than is actually the case, and (c) they hold views of the future that are more rosy than base-rate data can justify” (p. 21).

It should be noted that this study worked with a subsample of participants from Study 1. However, since the participants of Study 1 were debriefed only after the completion of Study 3, participants did not know the purpose of the study. Furthermore, all participants were randomly assigned to one experimental condition. The choice of approach or avoidance goals can therefore be interpreted as a reaction to the resource manipulation.

Nonetheless, it might be criticised that in our study participants were not actually confronted with the availability of resources. Instead they were asked to adopt a perspective in which they had many or few resources. We cannot exclude other confounding variables with respect to individual imaginative skills and even with respect to the distinct authenticity of the described situations. In addition, all studies so far focused on the concept of personal goals in daily life and contributed to the existing finding of resource influence in goal orientation during the whole lifespan (Ebner et al. 2006). A further replication within another level of goal representation (Elliot and Sheldon 1998) would support the generalisability of this effect. Taking these limitations into consideration, we carried out a fourth study designed as an online experiment, where participants were asked to work on cognitive ability tasks. The level of a task-relevant resource (i.e., time) varied between the experimental groups.

Study 4

In Study 4 participants were instructed to solve two typical tasks of an intelligence test (Wechsler 1997), namely figural and verbal analogies. The methods of Study 4 differed from the methods of the previous studies in two essential points. First, goal-relevant resources were induced as the *actual* time available to participants for working on these tasks. Second, we assessed approach-avoidance motivation for task goals, rather than personal goals, immediately before participants started solving the analogies. Most importantly, to gather evidence for the theoretically postulated mechanism between resources and approach goals, outcome expectancy was assessed as a mediating variable. We assumed that low availability of goal-relevant resources might decrease the individuals' outcome expectancy for the task at hand. Consequently, participants with low outcome expectancy might orient to the possibility of failure and therefore adopt avoidance goals which focus on avoiding the negative outcomes of failure.

Method

Participants

A total of 2,324 students from different faculties of the Swiss Federal Institute of Technology in Zurich participated in this online experiment. Approximately 45% of them were excluded from the sample either because they did not fill out the complete questionnaire or because the log file suggested that they did not work on the experiment in consecutive order. The data of 1,287 student (422 women and 819 men) were therefore considered. Their mean age was 22 years ($SD = 5.04$).

Design

All participants were randomly assigned to three different groups of this 2 (task: figural analogies versus verbal analogies) \times 3 (resources: 10 vs. 35 vs. 60 s) incomplete within design. Participants worked on two different tasks in order to prevent any learning effects. In one experimental group, participants worked on the figural analogy task-set for 10 s and on the verbal analogy task-set for 60 s and in the second experimental group participants worked on the figural analogy task-set for 60 s and on the verbal analogy task-set for 10 s. In a third group we controlled for a general time-switch effect which could have influenced the approach versus avoidance task goal selection. Participants in the control group worked on both task-sets for 35 s. To control for order effects, the chronological sequence of the task-set was counter-balanced within the experimental and control-groups.

Procedure

An invitation e-mail including the link to the online experiment was sent to the students. Participants worked on two different task-sets of logical reasoning (figural or verbal analogies), each task-set contained six tasks of figural or verbal analogies. The amount of resources, that is the time available for working on the task-set, was manipulated as the independent variable. The approach versus avoidance task goal, which participants had to indicate before they worked on the task-set, served as the dependent variable.

On the starting page, the experiment was announced as a study concerning students' performance in logical reasoning. After that, the first task-set (either figural or verbal analogies) was introduced and the amount of time available for solving the task was announced (either 10, 35, or 60 s). Participants were not told that the available time for solving the tasks would change for the other task-set. Students ran a test in which they solved the task within the

corresponding time slot. In the right-hand corner of the screen, a digital clock indicated the time remaining. After completing the test run, participants reported their outcome expectancy concerning the task. In addition, they indicated their task goal for the following task-set. They then solved six tasks, each within the manipulated time slot of either 10, 35 or 60 s. Again the remaining time was indicated by a digital clock in the right-hand corner of the screen. After completing the first task-set (either figural or verbal), the second task-set (either verbal or figural) started together with another time slot. Participants were informed that the time varied because of the different analogy tasks. Again, they first completed a test-run, then reported their outcome expectancy and indicated their task-goal for the following task-set. After participants had completed the second task-set, the experiment closed with a short debriefing of the study, with a link to the correct solutions of the task-sets and with general positive achievement feedback.

Measures

Resources manipulation. Resources were operationalised as the time allocated to participants to solve the analogy tasks. Pre-tests showed that participants ($N = 26$, 19 men and 7 women) worked on the analogy tasks for an average of 22.67 s ($SD = 14.67$) to solve them correctly. The minimum time was 6 s, whereas the maximum time was 70.5 s. Taking the pre-test results into account, we decided that the available time would be 10 s for few resources, 60 s for many resources and 35 s for the control group.

Approach versus avoidance task goals. We enquired into two task goals, participants had to work on. As in the previous studies, approach and avoidance goals were displayed as forced-choice items with two distinct wordings of the same goal (e.g., the approach goal phrasing for one goal was ‘I want to achieve a good result’ and the avoidance goal phrasing ‘I want to avoid a bad result’). Participants had to decide which goal phrasing they preferred while working on the following task. The choice of approach or avoidance task goal was coded dichotomously, with avoidance goal = 0 and approach goal = 1. A total-sum index served as a dependent variable.

Outcome expectancy. Outcome expectancy (Bandura 1977; Heckhausen 1977) was assessed using three items about the individual’s self-efficacy belief concerning solving analogy tasks (‘How well do you think you are able to work on figural (or verbal) analogy?’), the feasibility of solving the analogy within the given time (‘How likely is it that you will solve all six analogy tasks correctly, when you have a time slot of 10 (or 35 or 60) seconds to work on the task?’) and the difficulty of the pre-test task (‘How difficult was the test task for you?’). Participants answered each item on a 7-point scale, with 1 indicating a low outcome expectancy and 7 indicating a high outcome expectancy. The reliability of all three items was Cronbach’s $\alpha = .73$ for the figural analogies and Cronbach’s $\alpha = .80$ for the verbal analogies.

Manipulation check. After the pre-test task, we asked the participants how adequate the time slot was for solving the task. Participants answered on a bipolar scale ranging from -3 (= time slot too short) to $+3$ (= time slot too long), where 0 represents an ideal time slot.

Task. The task-sets were taken from a web assessment of cognitive competence published online by a consulting and research enterprise (PSYREON, *Psychological Research Online*, http://www.psyreon.de/content/index_ger.html, retrieved January 29, 2008) which provides online-based diagnostic solutions.

Results

Descriptive statistics

Table 3 displays the means and standard deviations of the adequacy of time ratings, number of approach goals and outcome expectancy for the two different task-sets.

Manipulation check

In order to test the resource manipulation, we analysed whether the ratings for time slot adequacy varied between the different resource manipulations. There was a significant effect of resource manipulation within the figural

Table 3 Means and standard deviations of central variables in the experimental conditions (Study 4)

Variables	Figural analogies			Verbal analogies		
	10 s	35 s	60 s	10 s	35 s	60 s
Adequacy of time	−1.63 (1.02)	−.13 (1.13)	.52 (1.09)	−1.35 (1.61)	.55 (1.19)	1.23 (1.29)
Sum approach task goals	1.55 (.67)	1.69 (.61)	1.72 (.56)	1.62 (.64)	1.76 (.52)	1.81 (.46)
Outcome expectancy	3.82 (1.25)	4.35 (1.21)	4.72 (1.22)	4.44 (1.29)	5.42 (.97)	5.64 (.94)

$N = 1,284$

analogies, $F(2, 1,284) = 439.36$, $p < .001$, $\eta^2 = .64$. Planned comparisons revealed that participants in the 10 s condition rated the time slot as being less adequate than in the 35 s condition, $t(1,284) = 20.50$, $p < .001$, $r = .49$, and in the 60 s condition, $t(1,284) = 28.21$, $p < .001$, $r = .62$. Participants in the 35 s condition rated the time slot as being less adequate than participants in the 60 s condition $t(1,284) = -8.70$, $p < .001$, $r = .24$. We also found a significant analogous effect of resource manipulation for the verbal analogies, $F(2, 1,284) = 527.93$, $p < .001$, $\eta^2 = .67$. The results clearly indicate that in both analogy tasks the manipulation of the time slot successfully induced the perception of low, moderate and high availability of resources for the task.

Effect of resources on approach task goal adoption

No order effects of the counterbalanced chronological sequence of task-sets (figural versus verbal analogies) were found in the two experimental groups and the control group, $t(441) = .07$, $p = .95$ to $t(415) = 1.32$, $p = .18$. In other words, the order in which the task-set was presented did not influence the relationship between resource manipulation and approach versus avoidance task-goal adoption.

Since every participant worked on different tasks with different available resources in this incomplete-within design, we had to conduct two between-subjects one-way ANOVAs, one for each task-set. The aim was to test the influence of resources on approach versus avoidance task goal adoption.

For the *figural analogies*, the analysis revealed a significant effect of the resources, $F(2, 1,284) = 9.45$, $p < .001$, $\eta^2 = .12$. To test our specific hypotheses, we ran several planned comparisons, revealing that participants in the 10 s condition ($M = 1.55$, $SD = .67$) adopted fewer approach task goals than participants in the 35 s condition ($M = 1.69$, $SD = .61$, $t(855) = 3.20$, $p < .01$, $r = .11$, and participants in the 60 s condition ($M = 1.72$, $SD = .56$, $t(825) = 4.09$, $p < .001$, $r = .14$). Participants in the 35 s condition ($M = 1.69$, $SD = .61$) and in the 60 s condition ($M = 1.72$, $SD = .56$) displayed a comparable degree of approach task goal adoption, $t = -.89$, $p = .37$.

For the *verbal analogies*, the between-subjects one-way ANOVA revealed a resource effect on approach versus avoidance task goals, $F(2, 1,284) = 13.98$, $p < .001$, $\eta^2 = .15$. Planned comparisons indicated that participants in the 10 s condition ($M = 1.62$, $SD = .64$) adopted fewer approach task goals than participants in the 35 s condition ($M = 1.76$, $SD = .52$, $t(801) = 3.47$, $p \leq .01$, $r = .12$), and participants in the 60 s condition ($M = 1.81$, $SD = .46$, $t(760) = 5.00$, $p < .001$, $r = .18$). Participants in the 35 s condition ($M = 1.76$, $SD = .52$) and in the 60 s condition ($M = 1.81$, $SD = .46$) displayed a comparable amount of approach task goal adoption, $t = -1.67$, $p = .10$.

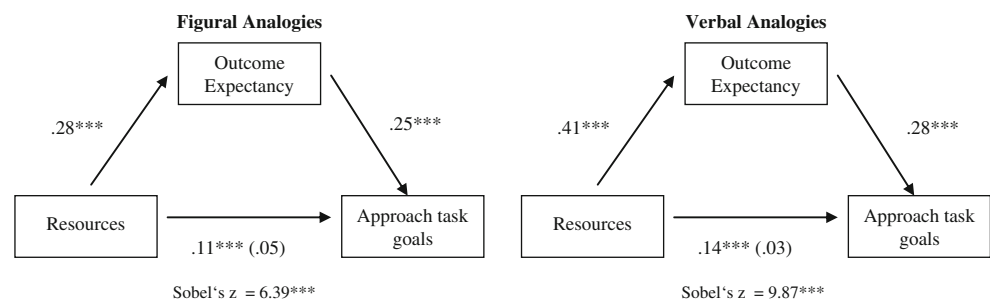
It is important to note that participants did not receive either feedback or any information about their task performance while they were working on the task-sets. It can therefore be ruled out that any feedback explicitly given to the participants could have affected the participants' task goal adoption. The result that participants in the 60 s condition did not differ from those in the 35 s condition can be explained by a ceiling effect. Obviously, the allocated time of 35 s was already sufficient to work on the task, so that 60 s could not influence the task goal adoption anymore.

To summarise, having few resources (i.e., not having enough time to work on the task) induced an inclination to select avoidance task goals, such as 'I don't want to give false answers' or 'I want to avoid a bad result'.

Testing the mediating effect of outcome expectancy

To test the notion that outcome expectancy mediates the relationship between resources and approach versus avoidance task goals, we computed several regression analyses (Baron and Kenny 1986). Due to the 2 (task: figural analogies versus verbal analogies) \times 3 (resources: 10 vs. 35 vs. 60 s) incomplete-within design, we had to run two separate mediational analyses for the figural and verbal analogies (see Fig. 1). For both types of task, the amount of resources positively predicted outcome expectancy, and outcome expectancy positively predicted the adoption of approach task goals. Simple regression analysis showed that the amount of resources positively predicted the adoption of approach task goals, but when outcome

Fig. 1 Mediation analysis of outcome expectancy within the two different tasks



expectancy was held constant in a multiple regression, the relationship between resources and approach task goals was no longer significant. The Sobel (1982) test was statistically significant, supporting a full mediation of the relationship between resources and outcome expectancy.

To conclude, outcome expectancy fully mediated the relationship between resources and the adoption of approach task goals for both task types, showing that resources did not directly affect the adoption of approach versus avoidance task goals, but rather influenced individual outcome expectancies which in turn induced the adoption of approach and avoidance task goals.

Brief discussion

Study 4 again supports our hypothesis that resources do have an influence on the adoption of approach and avoidance goals. Specifically, we once again replicated the intriguing finding that the adoption of approach and avoidance goals is sensitive to the availability of goal-relevant resources. More precisely, participants selected avoidance task goals if they only had few resources to work on that task. In this study, we effectively induced the *actual* amount of resources rather than just relying on subjective estimates of resource availability.

While our previous studies focused on the effect of resources on personal goals during a time period of 3–5 months, this study worked with a more concrete level of goal representation focussing on “task-specific guidelines for performance” (Elliot and Sheldon 1998, p. 171) with a maximum duration of 6 min. Thus, with this experimental design we narrowed findings in the perspective of lifespan development (Ebner et al. 2006).

In addition, we obtained first evidence that the link between resources and approach versus avoidance goal adoption is mediated through outcome expectancy. When participants only had few resources to solve the announced task-set, they only had a low outcome expectancy in doing well at this task. Therefore, assuming they have little chance of attaining the performance goal, participants focussed on the negative valence in goal adoption, which leads to a preference for avoidance goals like ‘I want to avoid a bad result’.

General discussion

On a more general level, the present paper contributes to the literature on goals as a core functional unit in self-regulation (e.g., Austin and Vancouver 1996; Brunstein 1993; Carver and Scheier 1998; Emmons 1986; Locke and Latham 1990; Oettingen and Gollwitzer 2004). Goals can be analyzed according to a great variety of dimensions (e.g., specificity,

difficulty, thematic content). One goal dimension, however, that has recently received a great deal of attention because of its predictive power for cognitive, affective and behavioural outcomes is approach versus avoidance (for a summary, see Elliot 2008). The approach-avoidance distinction is regarded as one of the most fundamental psychological dimensions as illustrated by its prominence in personality, emotion, learning, and social psychology as well as psychobiology (Elliot 2008). With our studies we have contributed to the theoretical and empirical analysis of the antecedents to approach versus avoidance goal adoption, which have not received much attention so far.

The present studies reveal two main findings. First, approach versus avoidance goal adoption in daily life is influenced by the availability of situationally fluctuating goal-relevant resources. Second, the relationship between those resources and approach versus avoidance goal adoption is mediated by outcome expectancy.

Research on antecedents to approach versus avoidance personal goals in the achievement motivation domain has primarily focused on dispositional factors such as, for example, the achievement motive (e.g., fear of failure) and neuroticism (Elliot and Church 1997; Elliot and Thrash 2002; Higgins and Spiegel 2004). According to this line of reasoning, approach or avoidance goals are conceptualised as a stable construct, differentiating individuals as more approach goal oriented or, on the other hand, as more avoidance goal oriented. Recently, researchers have become interested in the intra-individual change of approach and avoidance goal adoption (e.g., Fryer and Elliot 2007), assuming that the adoption of approach and avoidance goals is not only a stable motivational preference, but also reflects a dynamic strategy of self-regulation. On the basis of research into lifespan development, one such factor is assumed to lie in the extent of the available resources people need to pursue their goals (Ebner et al. 2006; see also Diener and Fujita 1995; Hobfoll 1989).

The results of two field studies one of which with a longitudinal design and two experimental studies provide strong support for the hypothesised assertions. That is, the more goal-relevant resources a person possesses, the more approach goals she subsequently adopts. Conversely, the fewer resources she assumes she has, the more she will adopt avoidance goals. Study 1, based on a larger student sample reveals a positive relationship of goal-relevant resources and academic approach goal adoption. With Study 2 we extended the finding in that the presence of many resources predicts the augmentation of academic approach goal adoption over a period of 16 weeks. Notably, we were able to exclude the stable personality disposition neuroticism as a confounding variable of the relationship between resources and approach goals. As such, resources predicted approach and avoidance goal adoption over and

above neuroticism. With Study 3, a scenario study, we obtained solid evidence of the causal relationship in that the manipulated resources affected the adoption of approach and avoidance goals. In Study 4, we actually manipulated the availability of resources through the time allocated for solving different cognitive tasks. Again, resources influenced the adoption of task goals. To summarise, situationally changing resources do affect the adoption of approach and avoidance goals, as is demonstrated not only in two field studies focussing on personal goals, but also in two experimental studies focussing on task goals.

In the context of lifespan psychology, Ebner et al. (2006) have demonstrated that young versus old adults differing in the extent of resources also differ in their preference for goal orientation. Our studies complement this research field. We have demonstrated that individual resource perception is a factor that affects approach and avoidance goal adoption not only during ontogenetic development, but also during the daily pursuit of personal goals and the pursuit of specific task goals.

Moreover, we have contributed to the notion of approach and avoidance goals as a dynamic self-regulation strategy that changes depending on external circumstances. In the same vein, Senko and Harackiewicz (2005) have specified performance feedback as such external circumstances. Negative performance feedback might indicate to the individual that s/he momentarily doesn't possess the necessary resources for task accomplishment. Hence, with our studies we add another specification, namely individual resource availability.

Nonetheless, it remains unclear which functional advantages might be associated with the selection of avoidance goals in the face of few resources. According to Diener and Fujita (1995) we hypothesised that a lack of resources is associated with low goal-related outcome expectancies, which in turn leads to a lowering of the aspiration level. Based on this line of reasoning, avoidance goals represent a lower level of aspiration than approach goals, imposing fewer demands on the individual. A study by VandeValle et al. (2001) addressing the effect of different types of learning goals (e.g., performance goals, learning goals and avoidance goals) on performance lends evidence to this reasoning, in that avoidance goals were substantially associated with a low aspiration level.

Whereas we did not directly address changes in the aspiration level as a possible explanation, we have first evidence that outcome expectancy does indeed operate as the underlying mechanism of the relationship between resources and the adoption of approach versus avoidance goals. Study 4 demonstrates that outcome expectancy mediates the relationship between objectively given resources and approach versus avoidance task goal selection. People with few resources reported lower outcome

expectancy and, in turn, adopted more avoidance goals. In order to obtain further convincing evidence for outcome expectancy as a mediating variable, future research should address this underlying mechanism in longitudinal studies in which the intermittent influence could be tested in a chronological sequence and therefore be temporarily disconnected from task goal adoption.

Our research addresses the dynamic side of approach versus avoidance goals from the perspective of its antecedents. In contrast, Gable and colleagues have conducted research on how people's daily shifts in their focus on approach- or avoidance-oriented relationship goals has important effects for their satisfaction with their partners (e.g., Gable 2006; Gable and Strachman 2008). Both perspectives, that is, analyzing antecedent conditions and consequences of changes in approach and avoidance goal orientations contribute to a deeper understanding of approach and avoidance motivation.

Limitations and future directions

The presented research does, however, have certain limitations. First, we only asked students to participate in our studies. It could therefore be disputed to what degree our findings can be generalised to individuals of different ages and educational backgrounds. Also, our analyses focussed exclusively on goals within the academic life context. Further studies should consider goals in other life domains which are less structured and less associated with clearly stated demands than goals in the academic life domain (e.g., goals within the private life domain) thereby enabling existing findings to be generalised. Furthermore, participants of the longitudinal field studies only rated their resources using self-report measures. Since the assessment of goal adoption was also based on self-rating, the link between resources and goal adoption could be influenced by common method variance. Future projects should consider the option of objective data collection for goal-relevant resources (e.g., supplemented self-ratings of resources with peer-ratings; Diener and Fujita 1995) as well as for approach versus avoidance goal adoption (e.g., behavioural measures as task choice; Elliot et al. 2007). In order to gather further support for the influence of objective resources on approach versus avoidance goal adoption, other objective resources than time should be investigated, for example the availability of information as a resource.

Practical implications

From an applied perspective, the findings of the present study illuminate a possible additional factor for the reason

why individuals commit themselves to avoidance goals. In a clinical setting, for example, resource allocation of patients should be examined carefully. It is likely that patients momentarily perceive themselves as having few resources. The model of conservation of resources (Hobfoll 1989) posits that all individuals strive to retain, protect and build resources and that the potential or actual loss of resources is perceived as psychological stress. He argues that people with a lack of resources tend to take a defensive position in order to protect their resources. We suppose that the adoption of avoidance goals as opposed to approach goals reflect such a defensive strategy and that, if the lack of resources is objectively the case, interventions should comprise some resource-managing techniques like setting clear goals, prioritizing objects, scheduling tasks etc. This could perhaps help to accumulate resources so that the patients' focus can be directed at positive end-states.

Conclusions

In conclusion, the level of goal-relevant resources is one possible condition under which the adoption of approach and avoidance goal switches. Both longitudinal field studies and experiments consistently demonstrated that approach goals are preferred when individuals perceive themselves as having significant resources. Once a decline in resources is noticed, they commit themselves more to avoidance goals. This contiguity was found for goals in the academic life domain and for specific task goals.

References

- Austin, J. T., & Vancouver, J. B. (1996). Goal constructs in psychology: Structure, process, and content. *Psychological Bulletin*, 120, 338–375.
- Baltes, P. B. (1997). On the incomplete architecture of human ontogeny: Selection, optimization, and compensation as foundation of developmental theory. *American Psychologist*, 52, 366–380.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191–215.
- Bandura, A. (1990). Self-regulation of motivation through anticipatory and self-reactive mechanisms. In R. Dienstbier (Ed.), *Nebraska symposium on motivation* (Vol. 38, pp. 69–164). Lincoln: University of Nebraska Press.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.
- Berridge, K. C. (2004). Motivation concepts in behavioral neuroscience. *Physiology & Behavior*, 81, 179–209.
- Brandstätter, H. (1988). Sechzehn Persönlichkeits-Adjektivskalen (16PA) als Forschungsinstrument anstelle des 16PF. *Zeitschrift für experimentelle und angewandte Psychologie*, 35, 370–391.
- Brandstätter, H., & Königstein, M. (2001). Personality influences on ultimatum bargaining decisions. *European Journal of Personality*, 15, 53–70.
- Brunstein, J. C. (1993). Personal goals and subjective well-being: A longitudinal study. *Journal of Personality and Social Psychology*, 65, 1061–1070.
- Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. New York: Cambridge University Press.
- Cattell, R. B. (1957). *Personality and motivation structure and measurement*. New York: World Book.
- Cattell, R. B., Cattell, A. K., & Cattell, H. E. (1993). *Sixteen personality factor questionnaire* (5th ed.). Champaign, IL: Institute for Personality and Ability Testing.
- Diener, E., & Fujita, F. (1995). Resources, personal Strivings, and subjective well-being: A nomothetic and idiographic approach. *Journal of Personality and Social Psychology*, 68, 926–935.
- Ebner, N. C., Freund, A. M., & Baltes, P. B. (2006). Developmental changes in personal goal orientation from young to late adulthood: From striving for gains to maintenance and prevention of losses. *Psychology and Aging*, 21, 664–678.
- Elliot, A. J. (1999). Approach and avoidance motivation and achievement goals. *Educational Psychologist*, 34, 169–189.
- Elliot, A. J. (2008). Approach and avoidance motivation. In A. J. Elliot (Ed.), *Handbook of approach and avoidance motivation* (pp. 3–14). New York: Psychology Press.
- Elliot, A. J., & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology*, 72, 218–232.
- Elliot, A. J., Maier, M. A., Moller, A. C., Friedman, R., & Meinhardt, J. (2007). Color and psychological functioning: The effect of red on performance attainment. *Journal of Experimental Psychology: General*, 136(1), 154–168.
- Elliot, A. J., & McGregor, H. A. (2001). A 2 × 2 achievement goal framework. *Journal of Personality and Social Psychology*, 80, 501–519.
- Elliot, A. J., & Sheldon, K. M. (1997). Avoidance achievement motivation: A personal goals analysis. *Journal of Personality and Social Psychology*, 73, 171–185.
- Elliot, A. J., & Sheldon, K. M. (1998). Avoidance personal goals and the personality-illness relationship. *Journal of Personality and Social Psychology*, 75, 1282–1299.
- Elliot, A. J., Sheldon, K. M., & Church, M. A. (1997). Avoidance personal goals and subjective well-being. *Personality and Social Psychology Bulletin*, 23, 915–927.
- Elliot, A. J., & Thrash, T. M. (2002). Approach–avoidance motivation in personality: Approach and avoidance temperaments and goals. *Journal of Personality and Social Psychology*, 82, 804–818.
- Emmons, R. A. (1986). Personal strivings: An approach to personality and subjective well-being. *Journal of Personality and Social Psychology*, 51, 1058–1068.
- Emmons, R. A., & McAdams, D. P. (1991). Personal strivings and motive dispositions: Exploring the links. *Personality and Social Psychology Bulletin*, 17(6), 648–654.
- Feather, N. T. (1982). *Expectations and actions: Expectancy value models in psychology*. Hillsdale, NJ: Lawrence Erlbaum.
- Freund, A. M. (2006). Age-differential motivational consequences of optimization versus compensation focus in younger and older adults. *Psychology and Aging*, 21, 240–252.
- Fryer, J. W., & Elliot, A. J. (2007). Stability and change in achievement goals. *Journal of Educational Psychology*, 99, 700–714.
- Gable, S. L. (2006). Approach and avoidance social motives and goals. *Journal of Personality*, 71, 175–222.
- Gable, S. L., Reis, H. T., & Elliot, A. J. (2003). Evidence for bivariate systems: An empirical test for appetition and aversion across domains. *Journal of Research in Personality*, 37, 349–372.

- Gray, J. A. (1970). The psychophysiological basis of introversion-extraversion. *Behavior Research & Therapy*, 8(3), 249–266.
- Gray, J. A. (1990). Brain systems that mediate both emotion and cognition. *Motivation and Emotion*, 14, 269–288.
- Heckhausen, H. (1977). Achievement motivation and its constructs: A cognitive model. *Motivation and Emotion*, 1, 283–329.
- Heckhausen, J. (1997). Developmental regulation across adulthood: Primary and secondary control of age-related challenges. *Developmental Psychology*, 33, 176–187.
- Heimpel, S. A., Elliot, A. J., & Wood, J. V. (2006). Basic personality dispositions, self-esteem, and personal goals: An approach-avoidance analysis. *Journal of Personality*, 74(5), 1293–1320.
- Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist*, 52, 1280–1300.
- Higgins, E. T., & Spiegel, S. (2004). Promotion and prevention strategies for self-regulation: A motivated cognition perspective. In R. F. Baumeister & K. D. Vohs (Eds.), *Handbook of self-regulation: Research, theory and applications* (pp. 171–187). New York: Guilford Press.
- Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, 44, 513–524.
- Larsen, R. J., & Diener, E. (1992). Tasks and promises with the circumplex model of emotion. *Review of Personality and Social Psychology*, 13, 25–29.
- Lewin, K. (1935). *A dynamic theory of personality*. New York: McGraw-Hill.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Upper Saddle River, NJ: Prentice-Hall.
- Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin*, 126, 247–259.
- Muraven, M., Rosman, H., & Gagné, M. (2007). Lack of autonomy and self-control: Performance contingent rewards lead to greater depletion. *Motivation and Emotion*, 31, 322–330.
- Muraven, M., Shmueli, D., & Burkley, E. (2006). Conserving self-control strength. *Journal of Personality and Social Psychology*, 91, 524–537.
- Oettingen, G., & Gollwitzer, P. M. (2004). Goal setting and goal striving. In M. B. Brewer & M. Hewstone (Eds.), *Emotion and motivation* (pp. 165–183). Malden, MA: Blackwell Publishing.
- Payne, S. C., Youngcourt, S. S., & Beaubien, J. M. (2007). A meta-analytic examination of the goal orientation nomological net. *Journal of Applied Psychology*, 92(1), 128–150.
- Perlman, D., & Duck, S. W. (Eds.). (1987). *Intimate relationships: Development, dynamics, and deterioration*. Beverly Hills, CA: Sage.
- Psyreon. (2007). Psychological Research Online. Retrieved January 1, 2008, from http://www.psyreon.de/content/index_ger.html.
- Senko, C., & Harackiewicz, J. M. (2005). Regulation of achievement goals: The role of competence feedback. *Journal of Educational Psychology*, 97(3), 320–336.
- Shah, J. H., Kruglanski, A. W., & Friedman, R. (2002). A goal systems approach to self-regulation. In M. P. Zanna, J. M. Olson, & C. Seligman (Eds.), *The Ontario symposium on personality and social psychology* (pp. 247–276). New Jersey: Erlbaum.
- Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equations models. In S. Leinhardt (Ed.), *Sociological methodology* (pp. 290–312). San Francisco: Jossey-Bass.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin*, 103, 193–210.
- Taylor, S. E., & Brown, J. D. (1994). Positive illusions and well-being revisited: Separating fact from fiction. *Psychological Bulletin*, 116, 21–27.
- VandeValle, D., Cron, W. L., & Slocum, J. W., Jr. (2001). The role of goal orientation following performance feedback. *Journal of Applied Psychology*, 86, 629–640.
- Wechsler, D. (1997). *Wechsler adult intelligence scale* (3rd ed.). San Antonio (TX): The Psychological Corporation.
- Wrosch, C., Scheier, M. F., Miller, G. E., Schulz, R., & Carver, C. S. (2003). Adaptive self-regulation of unattainable goals: Goal disengagement, goal re-engagement, and subjective well-being. *Personality and Social Psychology Bulletin*, 29, 1494–1508.